

ventable. It makes recommendations on how injuries can be prevented. For example, farmers are urged to read and follow the instructions in equipment operator manuals and on product labels.

The farmers are encouraged to conduct routine inspections of equipment to determine problems and potential failures that might contribute to or cause an injury. They are urged to conduct meetings with employees and family members to assess safety hazards, discuss potential injury situations, and outline emergency procedures.

There are also recommendations aimed at reducing specific hazards, such as the danger of injury or death in tractor roll-over or from moving machinery parts.

OSHA has participated in the National Conference on Agricultural Safety and Health of the W. K. Kellogg Foundation that was held in January in San Diego. In February, our national office staff held a successful half-day meeting with representatives of the Equipment Manufacturers' Institute and members of the American Society of Agricultural Engineers to discuss OSHA's present and future activities in machine-guarding on farm equipment.

OSHA is considering the concept of targeted training grants for non-profit organizations to develop and to deliver training in agricultural safety and health to large audiences. The audiences, for example, might include farmers, agricultural workers, and children engaged in farm-related work. There could be regional grants designed to address agricultural hazards prevalent in a particular area, as well as grants to nation-

al organizations for training and education on a national scale.

OSHA has also participated in various activities of the American Farm Bureau Federation aimed at improving awareness. For example, we had an OSHA booth at the National Farm Bureau meeting in Phoenix, Arizona, in January of this year. Jerry Scannell took part in a panel discussion of farm safety and health at that meeting.

OSHA has recently appointed agricultural outreach coordinators in each of our ten regions. These coordinators will continue to have other duties, but their agricultural-outreach responsibilities will be a part of their duties.

They will be the core occupational safety and health field representatives, as agricultural activities are explored and initiated. These coordinators are being directed to work with local experts on agricultural safety and health.

They will participate in regional meetings and seminars to maintain a dialogue with the agricultural workforce. I had the pleasure of meeting with a number of coordinators last night and I can assure you that they are excited about their work and eager to work with you.

OSHA also held four conferences across the United States in which we explained to the agricultural community why OSHA is planning to apply its PELs for air contaminants to agricultural worksites. The first conference was held in January, in Phoenix, and others were held in San Diego, California, and in Louisville, Kentucky, in

March. They were all in conjunction with significant agricultural activities. We had a large diversity of people at all of these conferences, and the feedback was very positive.

We are looking forward to publishing a proposed rule on PELs in agriculture in September or October of this year. We will probably be moving towards a final rule about a year and a half from October or November. Again, we are going to need your help to make sure that we have a good, common-sense approach.

We also held a two-day OSHA agriculture training and coordination session in connection with this conference, at the beginning of the week. About 20 people of the OSHA family attended the meeting, including all 10 of our newly-appointed OSHA regional-outreach coordinators, representatives of the state-plan states, and our consultation program states.

Among the topics discussed were the use of agricultural safety and health materials; updates on recent activities by OSHA and other government agencies including NIOSH, USDA, and HHS; and an update on the NCASH. Slide and speech modules utilizing the material prepared by the grantees are being distributed to the ten regions for use in agricultural-outreach programs. We are expanding our contacts with USDA on the state and local levels to increase outreach activities.

We will be making a presentation on the agency's agricultural activities and the regulatory process before a meeting of Midwestern Plains States of the USDA extension service in Columbus, Ohio, in

May of this year. In July, we will be making a similar presentation to the American Farm Bureau at a meeting back here, in Des Moines.

It also might be of interest to you that our current proposal for a motor vehicle safety standard, which calls for seat belt use and brief driver training for those who drive as part of their jobs, also would apply to the agricultural sector. Again, from the enforcement perspective, we do not enforce on the small farms. Nonetheless, the rule is something that everybody should be interested in.

In another area, a member of our staff has been comparing the new standard on ROPS for tractors and other vehicles, which was adopted by the Society of Automotive Engineers (SAE), to the existing OSHA standard. We have received design and test data from American tractor manufacturers and others.

We have made a preliminary conclusion that the new SAE standard is equal to or exceeds the current OSHA standard and, therefore, is acceptable to the agency. A final decision on this will be made shortly. Hopefully, this will make it easier for American farm equipment manufacturers to compete in the European market.

As you can see, we are just getting started again in the important field of farm safety and health. We are making progress and are committed to doing more in the future. We will continue to place emphasis on creating awareness of the need for improved safety and health for those who work on farms and on providing them with

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the necessary information to prevent deaths and injuries.

To do this, we will need all of your help. I reiterate that we must have an effective partnership, which includes all of those in this room, if we are to have any success in our goal of removing agriculture from the list of America's most hazardous occupations.

OSHA has learned a significant lesson from the 1970's. Jerry Scannell, our Assistant Secretary, and OSHA are committed

to moving OSHA forward again in occupational safety and health in the agricultural community.

Let us do everything that we can to preserve our human capital on America's farms. Let us give the men and women and their families working on the farms our best efforts in safety and health.□

SUSTAINABLE AGRICULTURE AND SAFETY

By Willis R. Eken
Chairman, Minnesota Farmers' Union

Dr. Rice C. Leach: Our next speaker is Willis R. Eken of the Minnesota Farmers' Union. He was elected President of the Minnesota Farmers' Union by the full board of directors in April, 1984, and began serving his first term in August of that year. He has subsequently been re-elected in 1985, 1987, and 1989. He is a lifelong family farmer from Twin Valley, Minnesota, where he and his wife, Betty, and their three sons raise small grains on their farm in the northwestern part of the state. He served seven terms in the Minnesota House of Representatives from 1970 to 1984. He was the House Majority Leader and a member of the House Agricultural Committee, House Taxes Committee, and the Rules and Legislative Administration Committee. During his legislative career, Mr. Eken initiated numerous bills that benefitted rural Minnesota, its farmers, and its communities. He has been influential in the passage of legislation designed to help people begin farming, promote family-style agriculture, provide for fair taxation, and promote many other items of importance to rural Minnesota. As President of the Minnesota Farmers' Union, he is known for his work in putting together coalitions that have worked for the preservation of the family farm as we know it today. I give you
Mr. Willis R. Eken:

I want to express the appreciation of our National Farmers Union for giving us an opportunity to take part in this forum at your Surgeon General's Conference. Our national president, Mr. Lee Swenson, has been asked to appear in Washington, D.C., today to meet with a representative of the agricultural community from the European Community. He was therefore unable to attend this meeting. So as a neighbor to your north, he asked me to share our National Farmers' Union comments with you today.

Our organization has a long history of working with farm safety issues and certainly a longstanding commitment to sustainable agriculture as part of our family farm structure in the United States. When we talk about farm safety, we talk of something more than freedom from injuries.

The term "farm safety" includes the entire workplace environment. It requires a close look at other occupational hazards such as increased risk of cancer and other diseases, and concern for safe air to breathe and water to drink and an atmosphere in which the farmer is free to concentrate on the tasks in front of him.

Farming is also, and always has been, a risky business. But, as the National Safety Council tells us, farmers today face a multitude of workplace hazards that make our industry among the most dangerous in the country.

Our organization, also, thinks about sustainability, the ability to continue an activity over the long term. In agriculture that means more than cutting down on pesticides and farm chemical uses.

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It includes the availability and the appropriate use of all our resources including soil, water, fertilizers, pesticides, the buildings on our farms, the animals, capital and credit, and certainly, not last, the people who are part of our agricultural community. Simply put, where any of these factors get out of kilter, that farming operation may not be in business when we look 20 years down the road.

For the National Farmers' Union, sustainability can be seen as a three-legged stool. The first leg is the sustainability of family farms. That has been the primary mission of our Farmers' Union since 1902. We advocate farm programs that support the family farm system of agriculture rather than those that would diminish the importance of that part of our agriculture-production base.

The second leg is the sustainability of natural resources such as soil, water, and air. We strongly supported the last two farm bills' conservation measures. We have taken leadership roles on other environmental statutes, such as the Clean Air Act and the Clean Water Act. We have also supported the research that attempts to find safer and more effective uses for chemical or non-chemical alternatives.

The third leg of the stool, the Farmers' Union leg, is the sustainability of our rural communities. Though few rural communities or areas are exclusively dependent on agriculture anymore, a healthy agricultural economy is still important to local businesses, churches, health-care facilities, schools, and other of the towns' basic infrastructures, including our transportation systems.

Today's agriculture is a different industry than it was even 20 years ago. While some of our safety concerns have been around since "man" first tried to domesticate wild animals and plants, others have come along with new technology and new attitudes in farming. A combination of technologies, government policies, global opportunities, and demographic changes have made so-called mainstream agriculture more concentrated, more monocultural, and more reliant on labor-saving devices and capital.

Let us start back in history. For the past 89 years, the National Farmers' Union has represented the small-and medium-sized family farm, a unit that some say no longer has that same meaning in today's agriculture. The longevity of the family farm in agriculture is under some question.

Our quarter of a million members would tend to disagree with that philosophy. Most would admit that the full-time family farmer has been under enormous pressures to change in the last 20 years.

The rallying song of lenders, government, land-grant colleges, and others in the late 1970's seemed to be "get big or get out." Those of us who followed that message and got used to the borrowing capabilities we had to capitalize our farming operations got ourselves into extended debt and went through some traumatic experiences during the mid-1980's.

We now seem to be hearing a second verse of this theme. I guess you would have to identify it as one of getting a real job in town to support your family hobby—your family farming hobby, part-time farming.

With these trends have come some new and more complicated equipment, longer hours in the fields and barn, and enormous amounts of pressures and stress. All of these factors lead to the American farmer facing hours and hours of diligent work. It is this stress that has led to a higher rate of certain diseases and more frequent injuries.

► First, we will talk about disease. Diseases have always been a problem in rural areas where access to health care, particularly preventive health care, has not always been as accessible or as available as it is in our more urban centers. Some very disturbing correlations are being drawn between modern agricultural practices and diseases such as leukemia and stomach cancer, to name two.

Research done by the National Cancer Institute and others in Iowa and Nebraska during the mid-1980's revealed a much higher incidence of leukemia among corn farmers than within the general population. The risk of cancer in general has been lowered among farmers and in the public at large.

For some reason leukemia, including the cancers of bone marrow, spleen, and lymph nodes, was occurring 24 percent more often with Iowa farmers than in the public at large. The figures were even higher for counties that grew predominantly corn or were using high levels of insecticides.

► Certainly, when we look at injuries, they appear to be on the rise in agriculture. Yet statistics sometimes can be, possibly, somewhat misleading.

On one hand, agriculture may be looking much worse by comparison. Other industries in our communities, such as mining and construction, have been steadily lowering casualty rates as their unions and the Occupational Safety and Health Administration (OSHA) maintain pressures for change. On the other hand, there seems to be a lack of a coordinated system in place for reporting or tracking agricultural injuries, and the number of actual mishaps may be worse than we sometimes realize.

I would say that it is something of a sham if the most effective tool for safer environmental protection regarding machinery is a lawsuit.

As we understand it, much of the equipment manufactured for agriculture is outside the scope of OSHA and the Consumer Products Safety Commission. Equipment is getting ever more complex, and there are no mandatory safety standards in place. There are only the voluntary efforts of the American Society of Agricultural Engineers.

I will not go into the political pros and cons of regulating farm equipment. First of all, there is not time. Second, our organization does not have a formal policy position on this issue.

I would say that it is something of a sham if the most effective tool for safer environmental protection regarding machinery is a lawsuit. The time and expense of litigation are hard to justify as a sustainable use of our resources.

The possibility of suits may keep manufacturers from voluntarily improving their products. The improvement is an admission that the old product is unsafe to use.

Farmers certainly must accept their share of responsibility for farm injuries. There are farmers who remove protective shields and other safety measures that get in their way as they use or repair a machine. Unlike most factory machinery, most farm equipment will still run without the safety features in place.

There are farmers who cannot afford to hire extra help. They simply push themselves too hard or rely on their children of all ages to pick up the extra chores.

One extension agent in a state is not going to reach everyone necessary to solve the problem.

What seems like the most economical choice at the time, all too often turns out to be very costly in terms of medical bills, the loss of limbs, and sometimes even the loss of life.

What can we do about this sustainability and the safety factors involved in agriculture? When it comes down to it, we believe that safety and sustainability are interchangeable.

You cannot have one without the other. There are several areas where more can be done. The National Farmers' Union would like to take part in working with you in these areas.

- Number 1, we believe there must be some changes in basic agricultural farm policy. We need to have government programs that allow a farmer to make a living on the farm through the marketplace with some protection in that marketplace though our farm policies and our farm programs.

- Number 2, we must insist on more research in farmer education on farm safety through USDA, through the land-grant university system, through the private sector, through OSHA, with education, and others. We can, working together, do a better job.

One extension agent in a state is not going to reach everyone necessary to solve the problem. Raising the level of awareness of farm safety problems and making necessary changes in equipment, attitudes, and behavior must be a team effort.

- Number 3, we must recognize the negative impacts of concentration in food production and processing on the sustainability of farmers, our natural resources, and our rural communities. Concentration has been the trend in many sectors of our economy over the last 10 years, especially in agriculture. The independent owner-operator should not become a relic of the past, whether we are raising hogs or feeding cattle. Production and processing are both necessary to the rural community as a balance of other resources.

The megafedlots that are mushrooming in some states do not buy their feed or other supplies from local suppliers. Instead, they will likely bring it in by the truckload or

trainload from another subsidiary feed company somewhere else.

Too often the community's only involvement, other than a few hired hands, is in dealing with the waste management problems caused by many animals in too small a space. The community must deal with underemployment caused by running independent operators out of business.

- Number 4, we must insist on the affordability of quality health care in our communities. This is one of the most serious issues facing our rural residents.

Consider the cost and the accessibility of health insurance coverage. We hear from our members of instances of \$400 to \$500 to \$600 per month in family health insurance cost coverages, which is diminishing the opportunity for many of our farm families to participate in the private insurance field.

I saw some statistics recently that indicated, again, the lack of numbers in terms of health provider, personnel, in our rural communities as compared to the per capita availability of medical resources in more urban areas. Problems are facing our rural small hospitals in terms of being able to have the financial base to continue to provide health care access for our rural members.

- Number 5, the Congress needs to look at and fund the re-authorization of the pesticides effort and give the EPA the tools to complete the re-registration of older pesticides on time. In addition, funding needs to be there to look at safer pesticides.

Alternative pest control methods must be fully funded.

- Number 6, USDA should fully utilize the integrated farm management program options that were created in the 1990 Farm Bill. Here, again, I think we are going to have a major conceptual change of our agricultural base. Now we have gone through a period of more concentration and specialization in farming.

For example, look at our poultry industry. In this country it is vertically integrated. On our farm, we have gone out of livestock. We are now a cash-crop farming operation. We have specialized in the area of our own operation on our own farm.

What are the barriers to going to a more sustainable, diversified agriculture? I think they are in the marketplace.

I believe on our farm, for example, if we are going to move off a two-year rotation, which we are primarily in now, between cereal grains and row crops. We are going to have to look at using less chemicals and less commercial fertilizers.

We are going to have to look at a longer rotation process of our crops. Ideally, we should be looking at a six-year rotation instead of a two-year rotation. A six-year rotation would have to include legumes.

We would have to include one year of a later-planted crop to deal with weed control. We would have to do with one year of having a fall-planted crop on our farm.

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As we look at that kind of a rotation, we are going to move back towards a more diversified agriculture. Then, on our farm, we would be able to have some livestock as part of that operation to utilize some of the crops we grow.

What is the biggest inhibitor to making the change? First of all, economics.

We do not have much of a margin on the farm anymore. We are into an operation where we are hesitant to take the risk to change whatever might diminish that income.

Secondly, it ties back to the marketplace, in terms of the crops we raise. The crops that we can raise that are most profitable in the marketplace do not necessarily fit into that five- or six- or seven-year rotation.

- Number 7, we must establish a better reporting system to generate data on farm

safety for both injury and disease correlation. Perhaps this can be done within the existing USDA agencies such as the Agricultural Statistics Service.

Perhaps we could build on the restricted-use pesticide record-keeping requirements found in the Farm Bill. We could even add health and safety questions to the agricultural census form.

- Number 8, most importantly, we believe, we must keep the pressure on the Congress, the equipment manufacturers, and farmers themselves on the need for a sustainable, healthy American agriculture. We believe that family farm agriculture has been a real strength to this country in terms of producing high quality food at the lowest cost to the consumers. We look forward to working with you in a coalition effort to enhance the sustainability and the safety of family farm agriculture.□

THE FARM BUREAU'S CONTINUING COMMITMENT

By *Merlin Plagge*
President, Iowa Farm Bureau

Dr. Rice C. Leach: Our next speaker is Merlin Plagge who is serving in his second term as President of the Iowa Farm Bureau Federation, which is the state's largest general farm organization. Mr. Plagge was elected as its president in 1987 and again in 1989. In 1990, he was elected as a midwest representative to the American Farm Bureau Federation's Board of Directors. As a member of that board, he serves on its trade advisory committee and has been appointed by the Secretary of Agriculture and the U.S. Trade Representative to serve on the U.S. Agricultural Technical Advisory Committee for trade in oil seeds. On the state level, he serves on the Wallace Technology Transfer Foundation and on the Boards of Directors for both Blue Cross of Iowa and the Health Policy Corporation of Iowa. Prior to being president of the Iowa Farm Bureau, he served six years on the Farm Bureau Board as a District Director for North Central Iowa. His involvement in the Farm Bureau stretches back to 1958 when he joined the Cerro Gordo County Farm Bureau. At the county level, he was actively involved and held several leadership positions. Merlin and his wife, Shirley, are active in the First United Methodist Church in Sheffield, where he and his son and his wife farm a thousand acres. The two families run a grain and livestock operation and, in all, three of the four children in his family are involved in agriculture. Mr. Plagge will talk about the Farm Bureau's continuing commitment. Mr. Plagge:

For more than 70 years, one of the Farm Bureau's major goals has been to improve the quality of rural life. One of the best ways to accomplish this goal has been to reduce the injury rate and to help farmers make their workplace safe.

The Farm Bureau has been involved with farm safety activities since the 1940's. There are few other jobs where the entire family lives on the worksite and are exposed (24 hours of every day) to the same occupational hazards as the farmer.

Although we are seeing larger farming operations, most farms are still family operations. For this reason, it has always been difficult to determine if an injury on the farm is, or should be, classed as an occupational, recreational, home, industrial, or transportation injury. We must all

realize that every injury that occurs on a farm is not necessarily an occupational injury.

Farmers believe that safety begins with each individual. That is why many state Farm Bureaus have vigorous, active safety education programs. All farmers want to be safe and for their families to be safe. In the Farm Bureau, we are committed to help them attain that goal.

For many years, the American Farm Bureau and state Farm Bureaus have been involved in cooperative farm safety activities with land grant colleges and universities, the Extension Service, the National Safety Council, the National Institute for Farm Safety, Inc., state and local safety councils and committees, and national and state 4-H, and FFA programs.

These ongoing efforts have paid great safety dividends to the farmer and to farm families. But it is not enough.

As farmers, we do not relish the distinction of being considered the nation's most hazardous occupation. Therefore, through continued individual efforts and cooperation with other institutions, organizations, and agencies, the Farm Bureau will strive to promote farm safety and rural injury prevention.

Farmers believe that safety begins with each individual.

Through all of our combined efforts, we have lowered the numbers of farm fatalities and injuries. Yes, we are all concerned with numbers, but we must relate directly to family members, neighbors, and our friends and the numbers that they represent.

There is not only the emotional loss of a loved one or friend to be considered, but the economic impact of a serious injury or fatality to the farm family. This can be devastating.

Medical expenses are out of sight. Health spending will overtake Social Security as the biggest item in the Federal budget by the turn of the century.

Rural health is a major concern to farmers now whether considering quality, availability, or cost. The Iowa Farm Bureau will continue to address this issue with a strong effort.

Obviously, reducing injuries will, not only reduce a family's medical expenses, but alleviate the emotional and economic crisis that follows an injury. Farm fatalities have been declining in recent years, but not as fast as deaths from injury in other industries.

Since 1950, industry in America has reduced the occupational death rate by two-thirds. Farm deaths from injury have decreased by about 16 percent in the past 40 years. That time frame is a bit unfair for comparison. Between 1950 and 1970 farmers were buying and using more equipment, and deaths from injury were increasing.

But farms have become safer since 1970. Why?

I believe several factors have strongly influenced farm safety in recent years. In 1968, the Congress passed and the Department of Labor issued what is known as the "the hazardous work orders for youth under 16 in agriculture."

These work orders restrict young people under 16 years of age from being hired to perform what are considered to be high-risk jobs on the farm. While there are certain exceptions, which involve training and family exemptions in these orders, attention was drawn to farm safety for youth.

In 1970, the Occupational Safety and Health Administration (OSHA) was created. OSHA has had a more direct impact on reducing injuries and fatalities in other industries. However, their indirect impact on agriculture is unquestionable. Even

though they have been prohibited by the Congress from enforcing their rules on agricultural operations with 10 or fewer employees, knowing they exist has encouraged farmers to work for safer farmsteads.

Due to engineering advances in the last three decades, farm equipment manufacturers have incorporated more safety devices on their equipment. Integral rotary shields for power take-off shafts and roll-over protective structures for tractors have been two major accomplishments in making farm machinery more user-safe.

Since tractor roll-overs are involved in a large portion of agricultural fatalities, elimination of this type of incident alone would cause the death rate on American farms to plunge. But farmers themselves must make the commitment to run a safe operation.

Even though they have been prohibited by the Congress from enforcing their rules on agricultural operations with 10 or fewer employees, knowing they exist has encouraged farmers to work for safer farmsteads.

When they see the dangers and learn the advantage, safety happens. In Nebraska, for example, university safety experts have conducted 450 tractor roll-over demonstrations since 1970 to convince farmers of the dangers.

About 23,000 young people were trained in tractor safety. There have been two known fatalities in this group. The nation-

al average for a group that size would be five deaths.

I do not presume to know all of the answers to our agricultural safety and health problems. I do know that university extension safety specialists and our Farm Bureau safety personnel across this country are continuing to prevent farm injuries through ongoing educational efforts.

Many of our state Farm Bureaus conduct a wide array of projects and educational programs that address safety and health issues. Presentations are made and programs presented at both elementary and high schools, organizational meetings on the job site or farmstead, and wherever they are requested. The topics, to name a few, are traffic safety, bicycle safety, tractor and machinery safety, chemical safety, chain saw safety, firearm safety, child care safety, all-terrain-vehicle (ATV) safety, first aid, CPR, and wellness.

In Iowa last year we funded the development of two tractor safety instruction programs for 4-H youth that produced seven up-to-date farming videos and two popular hands-on displays. It is important to make farm youth fully aware of potential dangerous situations on the farm.

In addition to safety presentations, other programs the Farm Bureau has been active in are promotion of the slow-moving vehicle emblem. Recently, through the efforts of our Farm Bureau women, more than 5,000 slow-moving replacement emblems have been sent to counties.

Over 20,000 respiration-hazard education materials have been circulated and pesti-

cide handling protection kits have been distributed. Also, 52 counties participated in a farm and home safety checklist program where members surveyed their homes and farms for safety concerns and corrected problems.

There has also been development of solid waste disposal information materials; a safe on-farm water supply project; distribution of a safety-practices checklist for farmers, and development and distribution of safety decals on various hazards.

These decals are now on the grain bins. Some say: "extra riders, lock it and block it or don't get under it, and don't jump start."

In addition, many state Farm Bureaus have audiovisual libraries with educational safety and health films, slide sets, and videos. These materials are available on a free loan basis.

As I said earlier, farmers themselves must make a commitment to run a safe operation but they also need some educational programs. To the extent that we can involve farmers in developing those educational programs, the more on target and successful we will be.

I would leave you today with this thought — agricultural safety and health are very important issues to today's farmer and every farm family. They know that their livelihood depends on being both safe and healthy. Your presence here at this conference not only shows your interest and concern for their well being but illustrates their importance in today's society.

Thank you for inviting Farm Bureau's participation in this conference.□

A VICTIM'S PERSPECTIVE OF THE CONFERENCE

By Marilyn Adams
President, Farm Safety for "Just Kids"

Dr. Rice C. Leach: Our next speaker has a name everyone knows and certainly will know after this morning, Marilyn Adams. We have had a lot of people talk about what things are like and what might happen, but we have the opportunity and the honor to hear from someone who has been on the playing field for real. Ms. Adams is the leader of a group called Farm Safety for "Just Kids," in Earlham, Iowa, which I learned is just about 30 miles west of here. In the fall of 1986, Ms. Adams' eleven-year-old son, Keith, was killed in an accident on the family's Iowa farm. One year after her son's death, Ms. Adams, realizing that not enough was being done about farm safety, began a campaign to promote education and awareness, initially by the distribution of danger decals for gravity wagons through the local FFA chapters. Recognizing the consuming public demand for farm safety awareness, she formed Farm Safety for Just Kids in October of 1987. They have only three employees, and the response from people nationwide is overwhelming. Mail and phone calls come from all over the United States and Canada and are received daily for farm safety information and merchandise available from the office. Materials available for sale include videos, color books, decals, T-shirts, hand-out materials, and other miscellaneous items. Farm Safety for "Just Kids" also compiles and sends out newsletters quarterly. I have a quote from Ms. Adams, but we have something better than the quote, we have the real thing. I give you Marilyn Adams:

Wayne Sprick asked the question, "What can we do to shift the risks as they relate to safety, or better yet, reduce that risk?" I think the most important point he made while answering that question was, "Service types of projects that serve the community."

The farmers are the ones who benefit from these programs in the reduction of injuries. We all need to look at community service programs that we can produce and utilize the youth to serve the communities.

The young people do not have enough materials to promote farm safety and add to their programs. If you were to financially support the vocational student organizations sufficiently and ask for their assistance on the community level, it would be to everybody's benefit.

My experience with the youth tells me that they are our best bridge to the farm family. If you take this one step further and train farm women in tractor safety, chemical safety, rescue, and the other aspects of farming along with the youth, Dad and Grandpa will not have a chance after we start rocking the boat and making waves. Another comment I heard from Wayne was, "Farmers listen to other farmers and the most effective learning is when there is activity involved."

We have heard throughout the conference that children are at very high risk. Yet there are low numbers of farmers and youth here at the conference.

Bob Aherin said something about roll-over protection standards (ROPS) that really interested me. He said to identify the

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farmers with high risk exposure and to identify appropriate intervention strategies.

As a farmer, this makes much more sense to me than suggesting that all farmers should put ROPS on all tractors. We need to start somewhere and give the farmer a realistic picture of the high-risk exposure with all tractors with end loaders or whatever the highest risk is.

My experience with the youth tells me that they are our best bridge to the farm family. If you take this one step further and train farm women in tractor safety, chemical safety, rescue, and the other aspects of farming along with the youth, Dad and Grandpa will not have a chance after we start rocking the boat and making waves.

I heard Wes Buchele address the issue of retrofits. By all means, guarding for the older equipment needs to be made accessible and marketed.

It is my personal feeling that dealers should not resell equipment without all protective shields. They have a responsibility to their customers to market the proper shielding for their own products.

I heard talk about child abuse and prosecution of parents. This topic created a lot of discussion in the halls, and I think it was intended to do this. One of the concerns I heard on this topic was, If that happens, where do you draw the line?

The scenario I can put together from the comments I heard is: If you prosecute the

father of the child that was identified on the news as "Seat Belt Murder," then the farmer, where do you draw the line and when does it stop? Do we also prosecute the parents of the children that O.D., do not wear bike helmets, drown, become underage drinkers and take drugs, or the parents of young kids home alone, or whose babies get frostbite and severe sunburns? Where does it start and stop? "Neglect" contributes to all of these.

Other things I heard in discussion were that we need more representation from the general farm production people here at the conference, more interaction and group discussion in the sessions, greater representation from agricultural support companies, discussion of the economic realities of farming, more emphasis on real-life solutions, and information about how to get the research from universities to applications in the field and to the farmer.

One of the things I found interesting was the discussions concerning chemicals, child labor, and migrant labor. I have little exposure to these issues that are in California and Washington and other states.

I was hoping to hear more quoted evidence of what is happening with the migrant workers. I still have some questions unanswered.

I am not clear whether the young children are being hired to work these fields or if the parents are taking the risk by taking them to the fields to work for them. I am also not clear on the chemical use. It sounds to me like there is a lot of misuse of chemicals.

That is not clear in my mind at all. I would really like to know more facts about this issue.

Most importantly, it is my personal opinion that, second to Dr. Novello, the very best presenter we had at this conference who summed it up was our 19-year-old Mark Timm, National President of FFA. He said "America needs youth; youth need adult help, support, guidance, and leadership." It was phenomenal!

Every speaker identified youth as part of the solution. The 4-H, FFA, and the other vocational youth organizations have limited funding. You ALL need to consider incentive grants that are paired with adult and youth organizations.

I also heard a great desire to have another Surgeon General's Conference on Agricultural Safety and Health. I would like to challenge you to consider the next conference having a different focus.

I have been to many conferences since I attended the last one here in Des Moines that was the beginning of my full-time career in agricultural safety and health. We have identified a definite problem and everyone has their own agenda.

This conference, by far, has been the best one I have attended. I look back at what has been accomplished in the last few years. I would like to see people share their experiences with each other and all of us go home with outlines of other programs to implement in our communities.

I expect a lot more will be accomplished in the next few years. Rather than everyone

having ownership of their ideas, we would all take advantage from sharing our success stories along with the stumbling blocks.

A second component to this is that all groups who attend should sponsor farmers, youth, or both to participate. What better team could we have? One of the ideas that Dr. Novello and others kept referring to is, "If you build it, they will come."

We did that and it worked. I am looking forward to our follow-up conference.

Dr. Novello gave the most heart-warming introduction to our conference. Something she said that keeps coming back to me is, "The kids don't have a voice, and the kids don't have a vote." Since I am here to represent the kids on the family farm, I was asked to share a special message brought to you by the kids. I would also like to take you for a tour out on a typical Midwest family farm.

[A Video-Tape entitled "Kids Talk Farm Safety Stuff" was shown.]

I will close with an invitation for you to become a member of our organization, join our networking system, and help us close some of these gaps. Jot down my address, and remember it is in your address book from the conference. I have three employees besides myself and an answering machine.

One final thought, I want each one of you to remember who is running this show. If you "let go and let God," it works. With that, I want to thank you all for coming. Have a safe trip, and God bless you.□

CONFERENCE SUMMARY

By *Rice C. Leach, M.D.*
Chief of Staff, Office of the Surgeon General

Ms. Adams. Do not run off. You are one terrific person. I am glad I met you. This plaque is from the Public Health Service and everyone here. It is with deep appreciation to Marilyn Adams, Farm Safety for "Just Kids," for her contributions to agricultural safety and health.

Thank you for the opportunity to participate in this landmark meeting. On behalf of Dr. Novello, I want to thank everyone who made this possible and to congratulate everyone who contributed to the information base.

BACKGROUND

Everyone so far has told about his or her relationship with the farm, and most have described long standing relationships. I too have a reason for being here, but it is not directly related to farming. In fact, my relationship to farming was short lived.

I grew up in Lexington Kentucky and worked one week on a thoroughbred race horse farm. During that week I learned very quickly that one does not hold the pitch fork directly above one's head while shaking out a stall and loading the spreader. I learned early on that farming was not my strong point.

I do however have some saving graces. First, I still drive the 1966 International Harvester six cylinder half-ton pick-up

truck that I bought when I graduated from medical school. Second, I spent most of my career managing health care delivery systems in the Indian Health Service. In those assignments I had to pursue the goals and objectives of the organization in an environment of constant change...

- ▶ Changing technology—New risks.
- ▶ Changing labor supply—As the doctors left.
- ▶ Changing funding—Usually less.
- ▶ Changing customer expectations — They wanted more.

Does this sound familiar? It should because it is similar to the kinds of change that we have heard about at this meeting—a changing technology with more pesticides, a changing labor supply as the doctors and others leave, a changing economy as farm profits drop, and changing demands as the population changes.

Working with Indian people provided a view of life that has served me well as a manager in a constantly changing world.

The last three days have demonstrated clearly that the assignment for us is to determine how to change for the better in a constantly changing world. As part of that, Dr. Novello charged us to raise the consciousness of the public and alert community leaders about critical issues, build coalitions among the health, education,

environmental, labor, and agricultural communities; disseminate the appropriate information; and encourage action to prevent injuries.

The reports from the concurrent sessions have provided information on what is known and what needs to be done about surveillance, chemical and biologic hazards, mechanical and physical hazards, worker protection from environmental hazards, and safe behaviors among adults and children.

So where do we go from here? We need to document what happened by publishing the *Proceedings of the Surgeon General's Conference on Agriculture Safety and Health*, we need to publish the *Surgeon General's Report on Agricultural Safety and Health*, and we need to reconvene after an appropriate time to plan strategy and assess our progress.

MANAGING CHANGE

What about the time in between? I Submit that we need to begin to manage change.

Let me return to my experiences with Indian people for a minute. I am certain that many of you saw Kevin Kostner's other movie, *Dances with Wolves*. He did a beautiful job of portraying the intimate relationship between Indian people and mother earth.

Most of the over 25 tribes with which I have been associated over the years have said in one way or another that their purpose in life is to live in harmony with nature and that the

So I submit that the purpose of this endeavor or our mission is to prepare the next generation to live in harmony with nature.

most important activity is to prepare the next generation. All through the week I have been struck with the similarity between those statements and our discussions of the need to educate people, protect children, and prevent injuries with regard to farm safety.

After all, how can you prepare the next generation to live in harmony with nature if you do not protect it from poisoning, cancer, trauma, and premature death. So I submit that the purpose of this endeavor or our mission is to prepare the next generation to live in harmony with nature.

There are several elements to this mission but the one most closely linked to the National Institute for Occupational Safety and Health is to enhance normal growth and development by reducing or eliminating environmental hazards.

To respond to the mission element requires setting objectives, which if obtained will reduce or eliminate the environmental hazards and enhance normal growth and development. The concurrent sessions have again provided information on the magnitude of the opportunities for intervention and change.

Each of us can set our own individual objectives but better yet, we can respond to Dr. Novello's charge to build coalitions among ourselves to set the appropriate

national, state, regional, local, and yes, family objectives. I heard one presenter say that her family was going to buy the roll-over protective device for their tractor. I encourage her to follow through on this commitment.

It sounds easy, just get some information, think about it, set some objectives, and plan how to meet them. It would be easy if it were not for the constraints placed on us by the rest of the world.

For example, time was when 70 percent of the population lived on the farm. Now 70 percent of the population lives within 100 miles of the seacoast. That means that political power and economic clout is concentrated within 100 miles of the coast and not on the farm. And that means that people in rural America are going to have to find new ways to **raise awareness and build coalitions to help them.**

Time also was when the profits from investment in farming stayed in town, in the county, in the state, or at least in the country. We are still an economy that allocates scarce resources based on capitalism, but the market place has left the farming community and has become the world. The profits are not as likely to be in the local bank to be loaned or in the local tax base to be invested in schools, roads, and health care.

To me this means that rural communities are going to have to develop new ways to influence the market place.

So we are back to change. I want to share some personal observations of organizational and individual behavioral change

and the reasons I think they occurred. I beg the indulgence of the scientists in the audience because I am going to use some anecdotes to develop the points. I know that anecdotes are not good science, but they are what constitutes a large part of the management literature.

I once asked a well known professor from the Wharton Business School how he could justify using anecdotes instead of hard scientific data and he replied:

First, its difficult to do well controlled double blind studies on human and organizational behavior and second, people pay a lot of money to hear my anecdotes... That is enough for me to validate the worth of what I say.

Twenty-five years ago I was assigned to Tuba City on the Navajo reservation and was put in charge of the TB clinic. We were lucky if we could get 15 people to come to clinic—partly because all we were seeing was TB patients, and even more importantly the treatment standard required that people with TB go to the sanatorium in Albuquerque.

This usually meant that the husband or wife was gone for nearly a year during which time all kinds of counterproductive things occurred such as selling all the sheep to go drinking. This situation resulted in dead *tubercle bacilli* and dysfunctional families. The Navajo people, being quite intelligent, avoided the clinic in droves.

When I left two years later we had 100 people a month in clinic each month and

had to open a second session. What happened? We gave them what they wanted.

► First, we agreed to treat the patients at home and not send them to the sanatorium if they would take their medicines and come to clinic.

► Second, we allowed the clinic to function more like a drugstore. If they needed cough medicine for grandmother, we got her chart and wrote the prescription. If they needed a refill on their birth control pills, we gave them a one month supply, and if they needed something for the baby, we did that too. We wanted to know about TB, and they wanted service. It was a win-win.

In the early 1980's I tried to convince the staff at the Phoenix Indian Medical Center to stop smoking and make the facility 100 percent smoke free. We were going to give people six weeks to change and go smoke free on the first of October. In the ensuing six weeks the staff became so polarized over the issue that imposing a non-smoking policy would have split the hospital so I backed down, but I did not stop the push for non-smoking.

I personally asked the smokers to stop, and I consulted with them about how we should manage the program. Over time smoking diminished, and after four years, the union proposed making the facility 100 percent smoke free as part of contract negotiations. The union made the request. Think about what that means in terms of organizational change.

I mentioned my wife earlier. She is from Guatemala, Central America and brings a

wealth of new ways of viewing the world to this life.

One of them is that she never misses buses or planes—she says that the bus left her. Several years ago we moved from a little town in Oklahoma to Phoenix, Arizona, which among other things is known for its frequent left turn automobile wrecks. After three years and three sets of fenders for my cars and those belonging to other people, I was continuing to tell her to stop hitting the cars and trees (she got one of them too). She kept saying that she was not hitting them, they were hitting her.

Finally it dawned on me to ask her to do whatever she could to keep the cars and trees from hitting her. She has developed the most incredible series of right turns and alternate routes you ever see, but she has had no more accidents, and you know what, I have noticed that if you pay real close attention, you can see a tree move every now and then. The point is that you have to have faith.

On a personal basis, I had several bouts of atrial fibrillation in the 1970's and early 1980's. For the non-clinical types, atrial fibrillation is to the heart what a loose distributor cap is to a gasoline engine; it just goes bobbity, bobbity, bobbity. I learned that alcohol, and not much of it, was causing the problem so I stopped drinking. What was my motivation?

It was not fear of death because I would be gone. No, it was fear of an internist with two shiny paddles coming at my chest with the defibrillator that motivated me. No way was I going to contribute to improving the chances that one of my col-

leagues would come at me with one of those devices.

Finally, there is an example from the *Harvard Business Review*. Do you remember how many fine German and American cameras were on the shelves of camera stores in the 1950's and 1960's? Do you see them now? No.

What happened is that the Japanese sent their engineers to U.S. camera stores to learn what people buying cameras really wanted. Once they learned, they went home and built it for them. The rest is history.

The point is that if you are going to stimulate change, you can make a lot more headway if you do it the customer's way. Find out what motivates a person or group and meet them halfway, and you are halfway there. For us, it means involving the farmers and their representatives as we determine the requirements and as we design the system.

PERSONAL OBSERVATIONS ON NEGOTIATING REQUIREMENTS

- Go for the win-win.
- Remember that some change takes a long time.
- Strike while the iron is hot.
- Do not try to swallow the whole horse at the same time. Break the job down into manageable components.
- Find the real leaders, and play to their strengths.

Senator Harkin was like a breath of cool fresh air on a humid day when he spoke about health issues the other day. When you have someone as enlightened as he is, play to his strengths and feed him as much as you can on health issues.

Remember the women. Throughout the ages, the women seem to be the ones that make the big social changes beginning with the Greek women who threw the men out of town until they agreed to stop going to war all the time.

It was Mother Teresa and not Father Terry that started picking up the helpless in India, it was the league of women voters—not men voters, it was Dorothy Dix and not Tom Mix that reformed care for the mentally handicapped, and it was Mothers Against Drunk Driving—not the fathers. And I am quite sure that we have another name to add to the list in Marilyn Adams who has founded Farm Safety for "Just Kids."

The Surgeon General charged us to raise consciousness, and we are talking about several different age groups. To reach children, what about the "Nintendo Pesticide Game" or the "Teenage Mutant Ninja Farmworker." Or for adolescents, what about "Doobie Howser does Iowa." And for adults, "Radar Reilly Comes Home."

I am serious about riding the wave of other's popularity. Can you imagine the impact of a Saturday morning cartoon on farm safety or a major network doing a teenage physician show that acknowledges agricultural health and safety issues?

We are to disseminate information. What about Junior and Senior high school classes that give academic credit for combined driving education or tractor education. We give credit for automobile driver education.

What about high school biology credit for Pesticides One and Pesticides Two. In talking to the FFA students yesterday, I learned that they generally have to go somewhere outside high school to get this information.

Building coalitions: others will have to make recommendations on this but in encouraging action, we can use the tools available to make change in the political,

economic, and health environment. We can work in a way that allows those who currently stand in opposition to save face and join later on.

In summary, we have been challenged to build a system whose planning, operations, evaluation, monitoring, and standards will reduce hazards and enhance normal growth and development so we can live in harmony with nature. Building this system must involve its joint owners in its design so their varying expectations and requirements can be met.

To paraphrase the Surgeon General and others who have spoken before, if we build it, success will come. Thank you.□

POSTER ABSTRACTS

The purpose of the Conference was to raise consciousness, build coalitions, disseminate information, and encourage action to prevent injury and disease in agriculture. To help in fulfilling this purpose the planners of the Conference saw that an opportunity for networking among its participants should be an important aspect of the meeting. An opportunity was provided through a poster session.

This session, entitled *Making Connections*, included posters from research organizations, governmental and volunteer programs, and individuals as well as a presentation of FFA posters and video tapes. Moreover, 4-H clubs participated with presentations of songs and skits during this session to emphasize the youth aspect of agricultural safety and health.

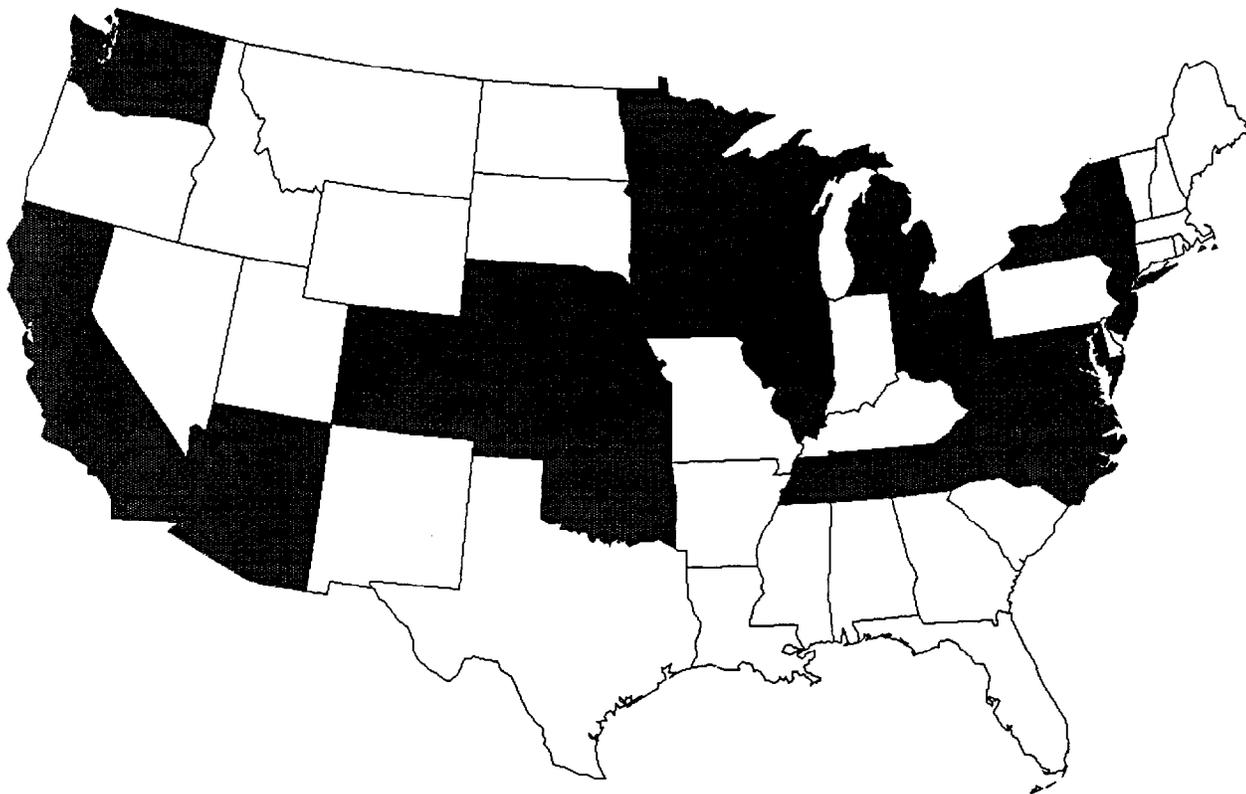


Figure 1. States from Where Posters Were Presented at the Surgeon General's Conference on Agricultural Safety and Health (exclusive of FFA Posters).

Other than the FFA posters, 95 posters from 20 states were presented at the Conference. These posters addressed a variety of programs in surveillance, research, and intervention, and abstracts of these presentations are provided in the following pages.

PLAN FOR ARIZONA AGRICULTURAL HEALTH PROMOTIONAL SYSTEM

By *Lance Fluegel, B.S.*
University of Arizona, Tucson, Arizona



- ▶ **AREAS TARGETED** — Agribusiness and High School, Emergency Rescue, University and Community College, Youth
- ▶ **DELIVERY METHOD** — Model Programs, Workshops, Classes, Model 4-H Programs.
- ▶ **KEYS TO IMPLEMENTATION** — Direct Mailings, Handbooks, Announcements, Advisory Committee, Balanced Selection, Identify EMT Teams, Advisory Committee, Training Trainers, Hands on Training, Financial Assistance, Develop Curricula, Advertise Course, Recruit Students, Instructor Survey, Hazard Evaluation, and Request Proposals.
- ▶ **PROJECTED RESULTS** — Written Safety Plans, Hazard Correction, Accident and Injury Reduction, Trained Member in Each Department, Other Instructors Expand Safety Offerings, Technicians Trained in Agricultural Machinery Accident Extraction, Safety Education, Student Training, Worker Training, Safety Course Offered Fall/1991, Agricultural Educational Teachers Take Safety Class, Safety Leadership, and Safety Awareness.

OCCUPATIONAL EXPOSURE TO GUTHION: CORRELATING RESIDUE LEVELS TO BIOLOGICAL MARKERS

By *Melissa Gonzales*
Graduate Student in Toxicology/Industrial Hygiene
University of Arizona, Tucson, Arizona



Cholinesterase inhibiting pesticides are a potential health hazard for workers who enter treated areas and have significant contact with the residue-laden foliage. To define this exposure, the California Department of Food and Agriculture is compiling a database of crop and task-specific transfer factors relating dermal exposure to dislodgeable foliar residue (DFR). In this study, DFR for guthion and gutoxon are assessed from the time of application through the harvest study period. The dermal exposure of peach harvesters is monitored with long-sleeved T-shirts, hand washes and face, neck, and hand wipes. Urinary dialkyl phosphate metabolites are quantified to estimate residue absorption. Blood cholinesterase levels are monitored as a measure of physiological response from absorbed residues. The observed transfer factor is compared to those previously calculated to further evaluate the organophosphate exposure model of the CDFA. This study is also a source of occupational exposure data on California's agriculture workforce, which is highly mobile and difficult to assess.

AGRICULTURAL INJURY IN CALIFORNIA: IMPLICATIONS FOR SURVEILLANCE



*By Carol Conroy, Ph.D., N. Maizish, L. Rudolph, D. Will
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California agriculture presents unique challenges when designing a survey to assess the magnitude of occurrence and characteristics of agricultural work-related injury. One challenge relates to the tremendous diversity of agriculture within the state. There are more than 30 million acres of land devoted to agricultural production or services, more than 83,000 farms, more than 60,000 farm workers, and more than 250 crops in production within California every year. The average annual rate for occupational traumatic deaths during 1980-1985 was 16 per 100,000 agricultural workers compared to an overall traumatic occupational fatality rate of 7 per 100,000 workers. During 1988, over 21,000 agricultural disabling work-related injuries were identified; 47 percent occurred during crop production and 43 percent were related to agricultural services. In order to target high risk farms to survey, multiple data sources were analyzed to describe the epidemiology of agricultural injuries within California. Injury rates vary by type of industrial classification within agriculture: vegetable and melon crops have an injury rate of 76 per 1,000 workers while cash grains (such as rice) have a rate of 101 per 1,000; and within agricultural services the injury rate varies from 13 per 1,000 for veterinary services to 88 per 1,000 for soil preparation. This reflects a variation in risk of injury associated with different exposures that must be considered during the design of the survey. Another challenge relates to diversity of the population at risk: farm workers and farm owners and operators. In addition, interviewing highly mobile and transient migrant farm workers (many of whom do not have a defined residence), many of whom originate from Mexico or Central America and do not speak or read English, required a sampling strategy that would allow these workers to be located. This sampling plan, based on a stratified random cluster sample, allows operators to be interviewed. Because farm workers and farm owners and operators are exposed to different hazards, have different demographic characteristics, and would require different intervention strategies, it is necessary to survey both to achieve the ultimate goal of preventing agricultural injuries in California.